IN THE CLAIMS

1-20. (Cancelled)

Please add new claims 21-27 as follows:

21. (New) A system for transmitting data at a data rate of at least 10 gigabits per second by preferentially launching input power into a large core multimode fiber optic cable (LCMFOC) to increase a length/data rate product of the LCMFOC, the system comprising:

a light source for transmitting data from a source as a first light signal, wherein the first light signal comprises a sequence of short light pulses at a data rate of at least 10 gigabytes per second;

a lens having a focal length (f), placed in a path of said first light signal at a distance of approximately said focal length (f) from an end of said LCMFOC, wherein the lens is located to receive said first light signal from said light source and to collimate and focus said short light pulses onto the end of the LCMFOC such that a diameter of focused short light pulses is approximately equal to a core diameter of the LCMFOC to excite low fiber modes and minimize excitation of higher order fiber modes in the LCMFOC,

wherein the LCMFOC is designed to decrease higher order fiber modes which increase pulse spreading that limit the length/data rate product and to thereby increase a transmission distance through the LCMFOC and output second light pulses which include substantially only lower order fiber modes, wherein the LCMFOC comprises:

an exposed core having the core diameter which receives the focused short light pulses; and

a selected doped cladding layer around said exposed core which is selected to excite low order fiber modes of the LCMFOC as said focused short light pulses propagate down the LCMFOC and to absorptively attenuate higher

order fiber modes generated in said LCMFOC as said focused short light pulses propagate down the LCMFOC, such that: said focused short light pulses propagate through the LCMFOC with reduced short pulse spreading effects that limit a length/data rate product of said LCMFOC.

22. (New) The system for high speed data transmission as recited in claim 21, wherein said lens collimates said first light signal to reduce an excitation of higher order modes generated in said LCMFOC.

23. (New) The system as recited in claim 21, wherein said first light signal has a wavelength greater than 750 nanometers.

24. (New) The system as recited in claim 21, wherein a signal level from said light source is launched to said selected LCMFOC at 20dBM or more.

25. (New) The system as recited in claim 21 further including:

a receiver coupled to an opposing end of said LCMFOC for receiving said second light pulses.

26. (New) A method for transmitting data over a large core multimode fiber optic cable (LCMFOC) at a data rate of at least 10 gigabits per second, the method comprising the steps of:

providing a selected large core multimode fiber optic cable (LCMFOC), wherein the selected LCMFOC comprises: a doped cladding layer around an exposed core having a core diameter, wherein the doped cladding layer is selected to excite low order fiber modes of the selected LCMFOC and to absorptively attenuate higher order fiber modes of the selected LCMFOC which contribute to pulse spreading to increase a transmission distance through the selected LCMFOC; and

providing a source of short light pulses;

providing a lens of a focal length (f);

placing said lens in a path of between the source and the selected LCMFOC at a distance of approximately the focal length (f) from the source; and

transmitting data from said source as a sequence of short light pulses at a data rate of at least 10 gigabytes per second;

focusing the sequence of short light pulses with said lens to collimate and focus said short light pulses onto an end of the exposed core of the selected LCMFOC such that a diameter of focused short light pulses is approximately equal to the core diameter to produce a focused sequence of short light pulses to preferentially launch input power into said selected LCMFOC to excite low fiber modes and minimize excitation of higher order fiber modes in the selected LCMFOC to increase a length/data rate product of said selected LCMFOC,

wherein the doped cladding layer:

excites low order fiber modes as said focused short light pulses propagate down the selected LCMFOC; and

attenuates higher order fiber modes as said focused short light pulses propagate down the selected LCMFOC so that said focused short light pulses propagate through the selected

LCMFOC with reduced short pulse spreading effects that limit the length/data rate product of said selected LCMFOC, such that second light pulses output by said selected LCMFOC include substantially only lower order modes.

27. (New) The method as recited in claim 26, wherein the core diameter is greater than or equal to 50 microns.

28. (New) The method as recited in claim 26, wherein said selected LCMFOC comprises: a selected step index LCMFOC.

29. (New) The method as recited in claim 26, wherein said first light signal has a wavelength greater than 750 nanometers.

30. (New) The method as recited in claim 26, wherein a signal level from said light source is launched to said selected LCMFOC at 20dBM or more.